MARKETING ACTIVITIES

Quality Citrus Fruits For Export to Europe

Merchandising Mushrooms

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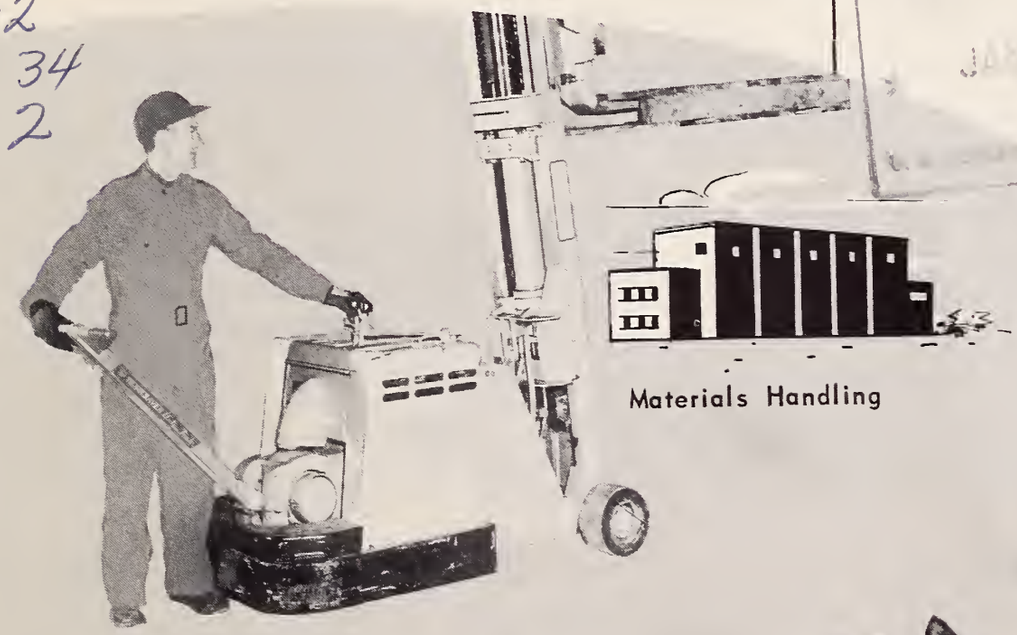

Materials Handling

Meat Grading

Minimum Wage

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service Washington, D. C.

In This Issue

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Quality Citrus Fruits For European Markets

By Harold T. Cook

Are you selling oranges and grapefruit in European markets? Here are some findings from a recent USDA study which will be of interest to members of the citrus industry exporting citrus fruits to Europe.

Overseas shipping tests with Florida and California citrus fruits showed that a better quality product could be marketed in Europe if the following practices were observed:

1. Select and pack higher quality fruit for export.

2. Precool oranges to below 40° F. as rapidly as possible after packing and protect them from warming on the dock or while loading.

3. Maintain transit temperature of about 35° F. for oranges and 50° to 55° for grapefruit.

These tests were conducted by the Biological Sciences Branch of AMS in cooperation with the citrus industry in Florida and California, exporters, the Florida Citrus Experiment Station, and USDA's Foreign Agricultural Service. Mr. J. R. Winston was in charge of the tests with Florida fruit. Dr. E. M. Harvey was in charge of the tests with California fruit. They were assisted by W. H. Redit. R. H. Cubbedge and E. P. Atrops were stationed in Europe to examine fruit upon arrival.

Nine test shipments were made with Florida fruit and 6 with California fruit. Five different vessels were used in the 9 Florida tests, and 6 in the California tests. The 11 vessels were representative of the kinds of ships used for transporting citrus fruit to Europe. Some of the ships were relatively old and others were new. All of these ships were able to maintain favorable temperatures if the fruit was precooled to the proper temperature before loading.

Special test boxes of oranges and grapefruit were included with the regular commercial cargoes.

In one of the tests fruit trucked from Florida was loaded at New York. In other Florida tests the fruit was loaded at Fort Pierce or Jacksonville. In all of the California tests the fruit was loaded from Los Angeles. The shipments were unloaded at Rotterdam, Holland, and Antwerp, Belgium.

Fruit Examined at Destination

Fruit and air temperature records were obtained by clock operated thermographs or electric resistance thermometers. These were placed in test packages or in the air stream at representative places in the cargo compartments. The effect of quality of fruit, packages, treatments, temperature, and other factors on the product at destination was determined by examing the fruit in the test packages and some of the commercial load. This was done when the ship was unloaded and after 1 or 2 weeks in the warehouse.

Findings were the same for Florida and California fruit. Much of the American fruit arrived in good condition. But there also was much room for improvement if American fruit is to compete successfully with fruit from the Mediterranean basin.

Mediocre Quality and Poor Handling

Individual lots in the regular commercial load had excess spoilage and poor appearance. This was largely the result of mediocre quality when shipped, and of poor handling from tree to ship. Such lots were bad for the general reputation of the American fruit. Unfavorable temperatures on the ship also caused some loss in quality. These were not due to faulty ship facilities.

Generally, the condition resulted from too high fruit temperature at loading or the shipper specified the wrong temperatures for the fruit when it was aboard ship.

Most of the oranges from the Mediterranean basin develop a richer and more attractive color than fruit grown in central and south Florida. American fruit for export, to compete successfully in appearance, should be more carefully selected to provide a better than average U. S. No. 1 grade. This can be done by packing fruit with fewer scars and other blemishes. If "color-add" is used it should be applied so as to give an even, attractive color.

Need for Higher Than Average Quality

Fruit for export must be of higher than average quality since it takes 3 to 4 times longer to reach Europe than domestic markets. It was frequently found that some lots of both California and Florida fruit arrived in Europe showing much decay and poor general appearance. Other lots from the same district and shipped in the same compartment had little decay and an excellent general appearance because the fruit was better at the start or had been handled or refrigerated better.

Shipping tests showed that the temperature of much of the fruit was too high when loaded. Also, the ships did not have sufficient refrigeration capacity to lower it rapidly to a suitable transit temperature. Proper precooling is especially important with fruit packed in cartons because of the retarded circulation of air through the cargo of tightly stowed cartons and the insulating effect of the fiberboard.

One of the ships used in the tests.

The nonprecooled oranges loaded at New York after trucking from Florida had temperatures up to 90° when loaded. They cooled only to 59° in the ventilated hold and to 41° in the refrigerated hold during the voyage. In the other shipments from Florida temperatures ranged from 35° to 74° at loading; from 33° to 59° at unloading after 12 to 14 days in transit. The average reduction in temperature after loading on the ship was only about 5° in 12 days.

In the first 2 California shipping tests, when the fruit was about 65° at loading, an average of 19½ days was required to lower the temperature to about 40°. These oranges were not precooled. Some of them were on the dock 4 days before loading. In the fifth shipping test the oranges were transported to the dock in preiced cars. Unfortunately, most of the cars ran short of ice during the 5 or more days of delay at shipside. Temperatures averaged about 77° at loading and were still 41° to 54° on arrival at destination--a condition favorable to decay in some lots of fruit.

Some of the Florida grapefruit was injured by low temperature pitting when it arrived in Europe. Some developed this injury after loading, before it could be marketed. This trouble generally was caused by shipping grapefruit at intermediate temperatures between 32° and 50° F. It could be reduced considerably by using a transit temperature of 50° to 55°.

The shipping tests and simulated shipping tests in storage, which were made at Orlando, Florida, also showed that fruit treated with sodium orthophenylphenate-hexamine and packaged in biphenyl-treated cartons had less decay than untreated fruit or fruit in plain cartons.

Meat Grading "On The Beam"

By Paul B. Ostendorf

Buyers of federally graded meat get the quality they expect--regardless of where they make their purchases. But this doesn't happen through mere chance or through use of radar equipment.

This consistent quality within each grade largely results from efforts of the Standardization and Meat Grading Branches, Livestock Division, of AMS, to see that Federal graders interpret and apply, uniformly, the official U. S. meat grade standards.

This is no easy job. Some 360 graders stationed in all parts of the country do this work. Their only guides are written standards that describe the development of the various factors for each of the grades.

To make sure that meat is graded the same in all parts of the country at all times, meat grading supervisors regularly attend school--"refresher school." The supervisors, many of them with 25 years or more service, do not study their 3 R's at the school. But they do refresh their memories on the fine points and highly technical aspects of interpreting and applying the grade standards.

Recently, about 30 of the Department of Agriculture's top meat grading supervisors went to a "refresher school" in Chicago. This was a strenuous 5-day meeting. Most of the time was devoted to discussions of the interpretation of the standards and the actual grading of carcasses.

Washington officials in charge of meat grading and standardization activities were the "instructors" at this "school." They went to Chicago a few days ahead of the meeting to select the carcasses that were to be used for grading and discussion at the school.

The carcasses selected were representative of all of the various classes and grades of meat. Most of them were chosen because they illustrated the application of the standards to the grading of carcasses which were near the borderline of a grade or because they had an unusually diverse development of their grade factors. They were the type of carcasses that are the most difficult to grade.

Saturday and Sunday--the first two days of "school"--were spent in discussion. But bright and early Monday morning, the supervisors assembled in their classrooms--the packinghouse coolers. Here, supervisors, individually, examined each of the carcasses selected. Then they made a written record of the development of each of the major grade factors -- the conformation of the carcass, its maturity, and its degree of marbling.

Determinations Made by Thirds of Grades

The grade of each carcass was then determined by striking a balance between the development of these various factors--as prescribed in the official standards. All of these determinations were made by thirds of grades instead of full grades, the normal method of grading, in order to correlate, as closely as possible, the supervisors' ideas on the fine points of grading.

After all of the supervisors had "turned in their papers," each carcass was discussed in detail by the entire group present. When supervisors differed in their opinions, they were called upon to defend their judgments. These discussions were most beneficial in pointing up supervisors' ability to evaluate the various grade factors and also their general knowledge and understanding of the standards.

Near - Freezing Temperatures in "Classrooms"

One of the most impressive aspects of this meeting was the seriousness with which each supervisor applied himself to the task. Despite the near-freezing temperatures in the "classrooms" and despite the fact that many of these supervisors were "old-timers" in meat-grading work, they were all very attentive and eager to know that their judgments were correct. They were also most eager to learn wherein they might need to make some very slight adjustments in their interpretations.

This is a reflection of the great importance that is attached to USDA's meat-grading activities and a reflection of the seriousness and devotion with which meat graders apply themselves to doing their job. The meeting at the "refresher school" was typical of other meetings that are held, regularly, every 4 to 6 months in various parts of the country.

Supervisors Hold Meetings with Graders

After the supervisors return to their home stations from these meetings, they, in turn, act as "instructors" and hold similar meetings with their assistants and graders. They also give "on-the-job" instructions to each grader, individually, in the regular daily review of the grader's work. In this way, graders in all parts of the country are supplied with the same type of instructions which enable them to do the consistent job required.

Six of the supervisors at this meeting are in almost constant travel status; about twice each month one of them visits each of the major grading stations. During these visits the traveling supervisors make a very thorough check on the grading to insure that it is being performed the same at all points and in accordance with the pattern set at the meetings.

The ultimate benefits of the "schools" and supervisor-grader relationship are reflected in the consistent quality that all who purchase meat have come to associate with each of the Federal grades -- from the large wholesale buyer for a chain store, fancy hotel, or restaurant to the housewife who is buying only for her family.

(Left) The addition of a half-pint window box to the display of pint window boxes did not change sales appreciably. (Right) Sales were not effected by the use of a plastic basket with a cellulose acetate overwrap containing about two-thirds of a pint of mushrooms.

Sales were increased nearly one-third by adding a new one-pound package to the usual display of pint window boxes.

Merchandising Mushrooms

By Wayne A. Lee, William S. Hoofnagle, and Hugh M. Smith

Retail sales of fresh mushrooms increased nearly one-third in 12 supermarkets in Pittsburgh, Pa., when 1-pound box packages of mushrooms were added to the usual display of pint window boxes.

Sales experiments conducted by USDA's Market Development Branch and the Pennsylvania State University indicated that this practice was the most successful merchandising method tested for increasing sales of mushrooms. The study was made to determine whether various merchandising practices that had increased sales of other produce items would be effective with a speciality item like mushrooms.

Mushrooms are used primarily as a flavor supplement in soups and casseroles or as a garnish for meat. They are purchased infrequently by most people, usually for additional variety in the diet. The retail value of mushrooms sold during the past year is estimated at $30,000,000.

Two sales experiments were conducted during April and May 1955. In each experiment 4 methods of merchandising, including the usual display of pint window boxes, were tested in 4 weekly periods involving 12 stores in a rotational experiment design. In both experiments, sales from displays of pint boxes averaged about 1 pint for every 90 customers passing through the stores.

Adding 1-pound packages of mushrooms to the usual display of pint window boxes increased sales by a third. Smaller packages were also tried. But the change in sales was not significant when a half-pint window box was added to the display of pint window boxes. Plastic baskets with a cellulose acetate overwrap and packed with two thirds of a pint of mushrooms, also did not change sales significantly.

These new experimental packages were designed to permit greater visibility of the contents. The new packages introduced in the test did not have the usual art work associated with modern packaging. This factor may have influenced the volume of sales.

Average sales increased when a suggestive display of pint boxes was made alongside steaks in the meat case, but the increase was not great enough to be "statistically significant."

Sales were less for mushrooms packaged in cellulose acetate bags than for sales of mushrooms displayed in pint window boxes. When only an 8-ounce bag was used, sales were about one fourth less. In a test with a variety of bag sizes--from 4 to 16 ounces--the reduction in sales was slightly less than the usual pint window box display.

Extra Handling For Cellulose Acetate Bags

One extra handling was involved in packaging cellulose acetate bags in these experiments. The 12 stores received all their mushrooms packed in pint window boxes, except for the 1-pound boxes. The 1-pound boxes were packed at the source of supply. All other packages were packed in the retail stores from mushrooms unpacked from the pint window boxes.

This extra handling contributed to "browning" of the mushrooms. This condition was very noticeable in the film bags and plastic baskets and may have reduced acceptance of these new packages.

These experiments indicate that sales of fresh mushrooms can be increased by using different methods of packaging and display. The use of a suggestive display, mushrooms alongside steaks, also indicates possibilities for displaying mushrooms with other food products with which they are commonly used.

Increasing the variety of package sizes, particularly by offering packages larger than the usual pint box, also appears promising as a means of increasing sales.

This study was the first attempt ever made to test the effect of various types of packages and methods of display on sales of mushrooms.

Sales in the standard pint window box averaged about one pint for every ninety customers passing through the stores during the experiments.

Materials-Handling In Public Refrigerated Warehouses

By Theodore H. Allegri

In a recent year, the volume of commodities received for storage in public refrigerated warehouses increased 10 percent, from 6.7 million tons to 7.5 million. At the same time employment in the industry increased 5 percent from 21,250 to 22,300 workers. But total wages jumped from $70,040,000 to $80,034,000--a gain of 14 percent.

The relatively greater increase in wages paid over tonnage handled increased costs per ton handled. This situation is of concern to the warehouse industry and of interest to government agencies studying methods for reducing the cost of marketing agricultural commodities.

Full Report to be Published at Later Date

USDA's Agricultural Marketing Service has recently completed a study of materials-handling operations in 6 warehouses located in 6 different States. This study analyzes the labor and equipment costs for handling different commodities in 4 different types of containers with 7 equipment combinations in 5 multistory and 1 single-story warehouses. See pages 12 and 13. The study, on which this article is based, is now being reviewed and will be published at a later date.

Sell Service and Space

The main business of warehouse operators is to sell space and service. Since the main service functions are essentially handling operations, storage plant operators, by using the data developed in the study, will be able to evaluate their existing methods and determine whether or not it will be to their advantage to change their methods and equipment.

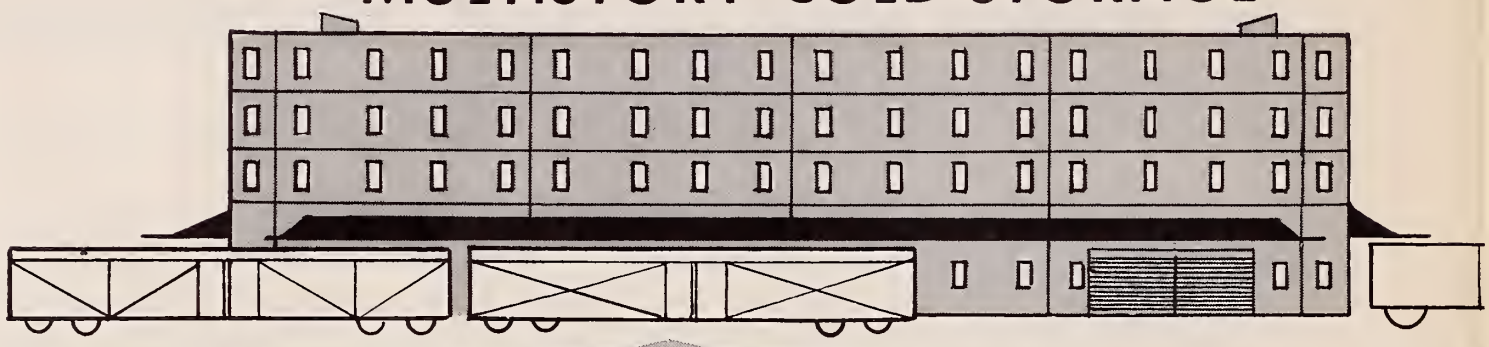
Wide Variations in Warehouse Design and Construction

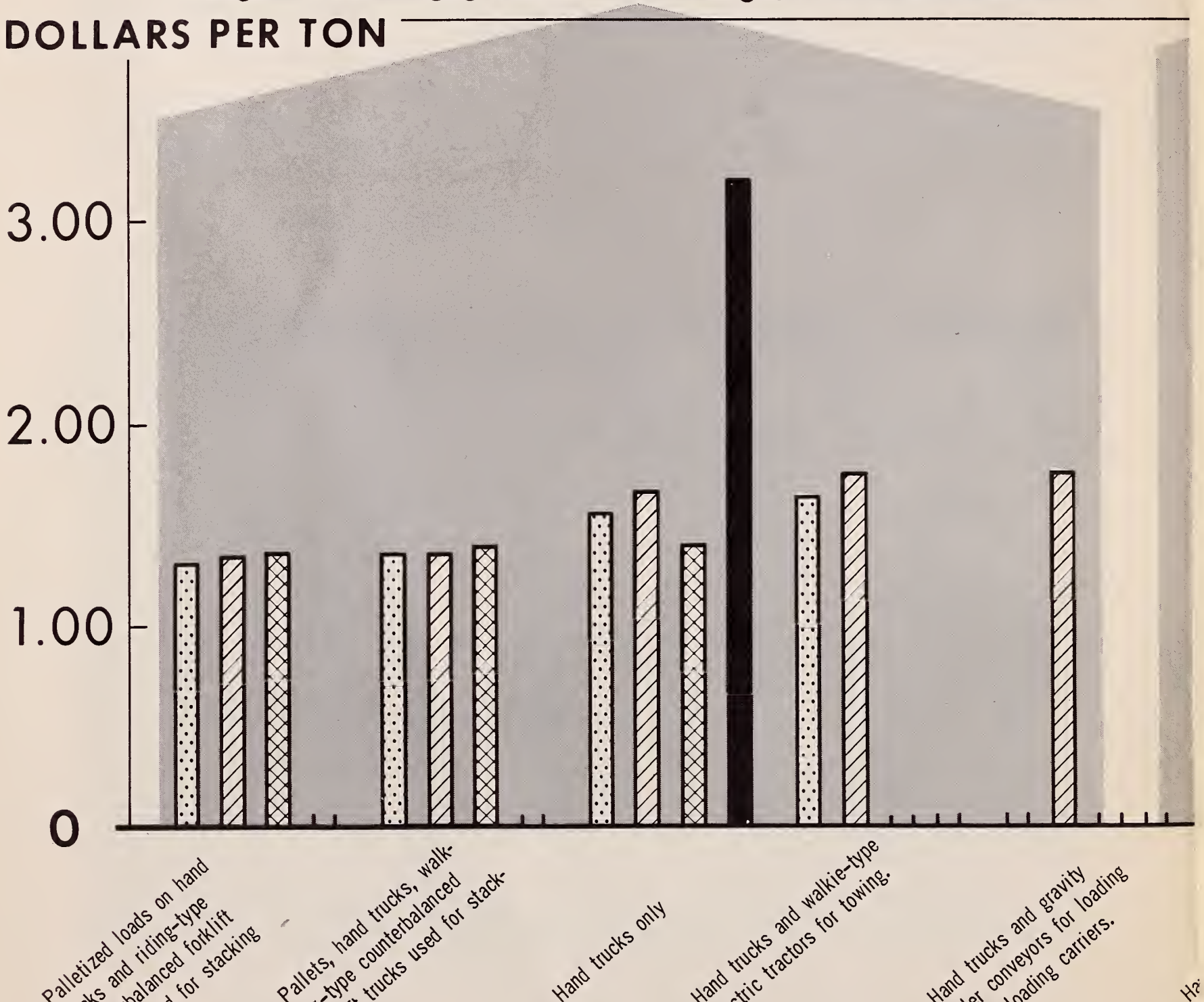
The two general types of warehouses present wide variations in design and construction of buildings, and in materials-handling equipment and methods used. However, the general sequence of operations is the same in both types of structure.

Commodities are received at the warehouse either in refrigerated rail cars, or in refrigerated highway trucks and trailers. Some shipments are received in box cars, or in uninsulated trucks or trailers. But this is the exception, since most of the commodities handled will spoil or deteriorate unless they are held at low temperatures.

LABOR AND EQUIPMENT COST PER TON

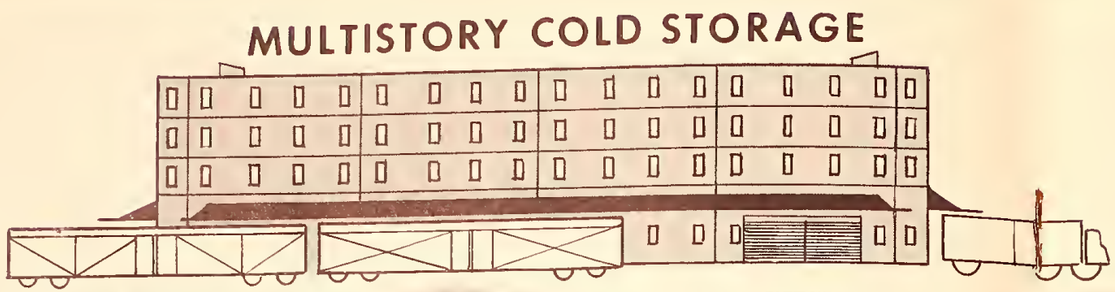
MULTISTORY COLD STORAGE

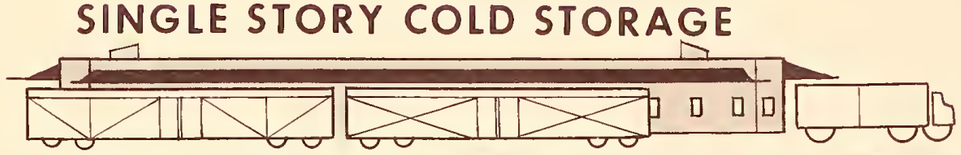


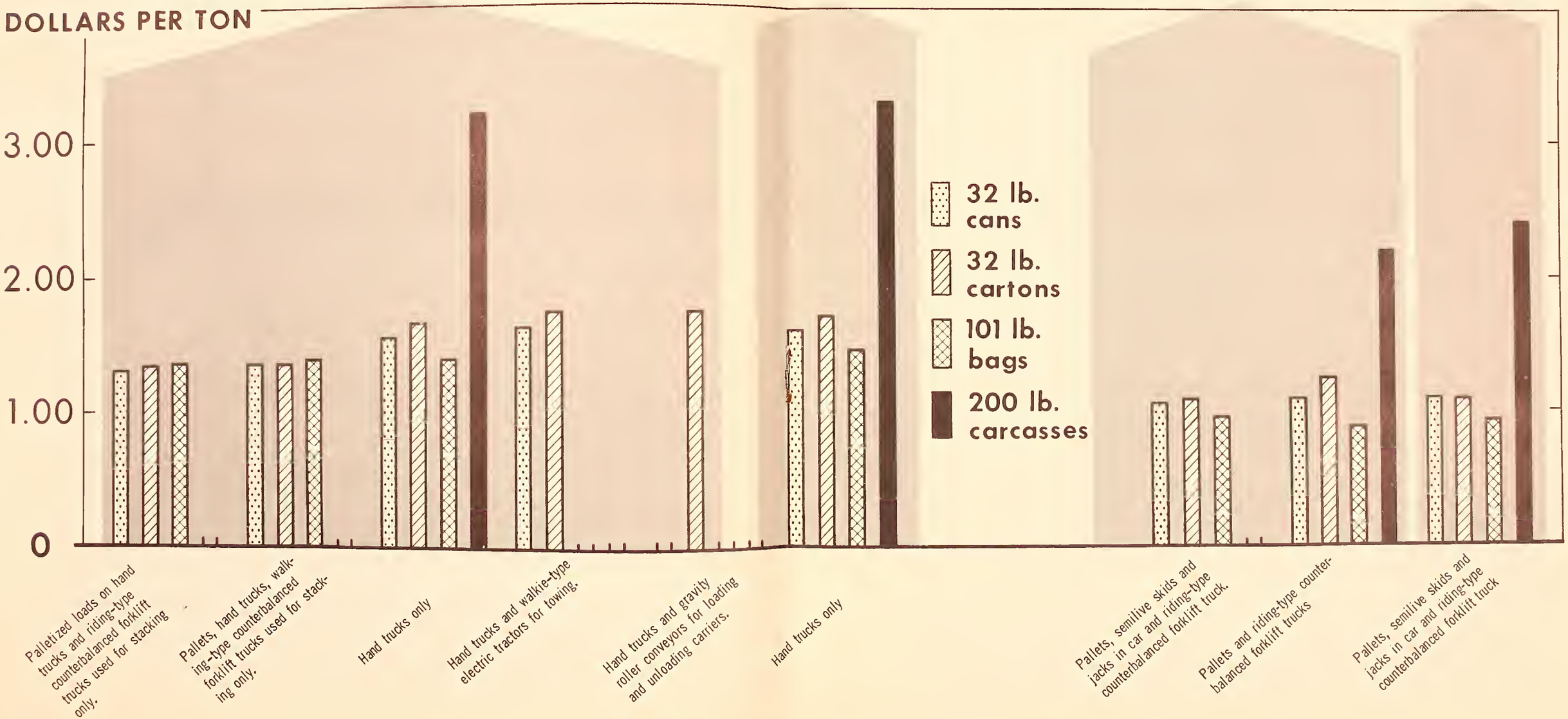


Data are preliminary. Figures shown do not include cost of management, facilities, or other overhead costs. La
$1.65. The labor costs shown do not include certain classes of idle time, such as changing jobs, or crew re

LABOR AND EQUIPMENT COST PER TON IN PUBLIC REFRIGERATED WAREHOUSES







Data are preliminary. Figures shown do not include cost of management, facilities, or other overhead costs. Labor cost is based on the following hourly wage rates: Unskilled $1.45; semiskilled $1.55 and skilled $1.65. The labor costs shown do not include certain classes of idle time, such as changing jobs, or crew regulated wait time, and down time due to mechanical equipment failures.

Commodities are received in full car lots in most cases, but partial carloads are also received. This is also true of receipts in highway trucks and trailers, although a much larger proportion of truck receipts are in smaller lots.

In all of the selected warehouses it is necessary to handle the containers manually to unload them from the transportation equipment. They are hand stacked either on handtrucks, on pallets carried on handtrucks or pallet dollies, on semilive skids with jacks, or on pallets only, lot stamped for inventory and control purposes, and then transported to the storage rooms.

75 Percent of Labor Used for Handling Merchandise

About 75 percent of the labor employed in the public refrigerated warehouse industry is used to handle merchandise into, within, and out of storage rooms.

The study indicated that the forklift truck can reduce handling costs in multistory warehouses considerably over the platform handtruck type of operation where unit loads can be placed into storage without sacrificing too much storage space. However, other factors sometimes restrict the use of mechanical handling equipment in multistory warehouses. Some of these are: Structural limitations of the plants, type of commodities handled, and elevator capacity.

In the single-story warehouse, forklift trucks are a necessity. The distance between the loading platform and storage point is usually beyond the limits where a platform handtruck may be profitably employed. Also, manual labor cannot be used to advantage because of great stacking heights in the storage rooms. The study demonstrated that on the basis of handling costs only, the single-story warehouse is considerably more efficient. Elevators that are an essential part of the materials-handling operation in multistory warehouses are not required.

Costs for handling meat in both type warehouses were, without exception, higher than for any of the other commodity types stored. This fact was understood before the study was made. But when the operations were analyzed and the results tabulated, the large differential in costs became even more apparent.

The cost of labor and equipment for the methods tested in the single-story warehouse shows a range of $0.88 per ton for handling bags to $2.39 per ton of carcasses. This may be compared with the multistory range of $1.30 per ton for handling cans to $3.29 per ton for handling carcasses. The most economical handling in the single-story warehouse using pallets and a forklift truck is 32 percent less than the most economical multistory warehouse handling system.

Generally, rail cars are loaded and unloaded somewhat more economically than highway trucks. The time for opening and closing the rail car is distributed over a greater tonnage. This is directly reflected in savings of labor and equipment.

The New Minimum Wage Law

By Imogene Bright

The coming increase in the minimum wage from 74 cents to $1 an hour, required by law effective March 1, 1956, is expected to have a greater effect on agricultural marketing than on industry as a whole. That expectation is based on the fact that wages paid in some segments of agricultural marketing are lower than those paid in many other industries.

The effects of the higher wage rate on agricultural marketing will be complex. At least for the short term, the new minimum may be expected to increase costs.

Although changes in wage rates have undoubtedly occurred in the last several years, and consequently estimates are not altogether accurate, surveys in 1951-52 of wages paid in selected industries indicate that some industries marketing farm products and subject to the new legislation may have substantial increases in wage rates. These industries include canning and packing fruits and vegetables, cotton ginning and warehousing, poultry and egg wholesaling, and dairy products manufacturing, particularly in the South.

Less Than A Dollar in Early 1954

It has been estimated that in early 1954 the following groups of production workers received less than $1 an hour; 11 to 28 percent of those engaged in manufacturing food and kindred products; 78 percent of those in tobacco stemming and redrying; 2 to 30 percent of those manufacturing textile mill products; and 10 to 50 percent of those manufacturing apparel and other fiber products. However, not all these persons are covered by the law.

The Department of Labor recently estimated for a few selected industries the direct increase in the wage bill resulting from the coming increase in the minimum wage. These estimates, based on wage data for April 1954, pertain to the entire United States. Various geographic areas, particularly the South, will be affected to a greater extent.

In the manufacture of work clothing, it is estimated that the wage bill will increase 14 percent for industries in the South, as compared with 11 percent for the U. S. as a whole.

In the manufacture of men's and boys' dress shirts, the estimated increase will be 12 percent in the South, compared with 7 percent for the U. S.

In the manufacture of candy and other confectionery products, the increase is estimated at 9 percent in the South, and 2 percent for U.S.

These estimates are of direct effects and do not include increases which may occur in the wages of persons receiving more than the legal minimum to maintain differentials between wage rates for jobs requiring different skills.

Neither do the estimates allow for changes in labor costs arising from management decisions which result in changes in employment practices, such as number and kind of employees hired and hours worked, as a consequence of changes in the minimum wage.

For industry as a whole, the increase in the total wage bill has been estimated at 3/4 of 1 percent for all employment covered by the law. But basic data are lacking for a solid estimate of the amount of increase in the wage bill of agricultural marketing, which is expected to exceed the percentage increase for industry as a whole.

About 5,105,000 employees in agricultural marketing are covered by the law which applies to workers engaged in interstate commerce or in the production of goods for interstate commerce and not specifically exempt. Neither employers nor farmers are covered by this law. In addition many persons engaged in agricultural processing are specifically exempt. Persons covered include an estimated 73,000 engaged in retailing; 575,000 in wholesaling; 3,804,000 in industries producing food and related products, tobacco, and textiles, apparel, and other fiber products, and 653,000 in interstate transportation and warehousing of farm products.

The law, which applies to workers engaged in interstate commerce or in the production of goods for interstate commerce, covers employees in such industries as textile....

...poultry eviscerating...

To estimate the aggregate marketing wage bill, it is necessary to know what wages are being paid before the law becomes effective. No information is available showing a national aggregate wage scale classified by commodities.

But average hourly earnings data are available, and may be adjusted to provide a basis for estimates of some effects of the new wage minimum. They include not only basic hourly and incentive wage rates, but also such items as premium pay for overtime and late-shift work and changes in output of workers paid on an incentive basis.

For purposes of this analysis of effects of the higher minimum wage, average hourly earnings figures were adjusted on the basis of factors published by the Bureau of Labor Statistics to remove the premium overtime payments. Also, average hourly earnings data presented in this article do not include the following: Irregular bonuses, retroactive items, payments of various welfare benefits, and payroll taxes paid by employers. Therefore, it can be assumed that the adjusted average hourly earnings data are roughly comparable to basic hourly and incentive wage rates.

Average hourly earnings for persons engaged in manufacturing, as reported by the Bureau of Labor Statistics for March 1955 and adjusted to remove premium overtime payments, amounted to $1.67 for food and kindred products; $1.35 for tobacco products; $1.33 for textile mill products; and $1.32 for apparel and other textile products. Similarly, average hourly earnings for employees in the wholesale trade were $1.82; retail trade, $1.45; and railroads, $1.83.

Union Wage Scales of Over $1 for Truckers

Data are not available on earnings of employees in trucking as of March 1955. However, union wage scales of over $1 an hour were reported in most areas other than parts of the South.

These figures appear to show that most persons affected by the act are already receiving $1 an hour, or more. However, the figures represent an average for the United States, and the law does not deal with the average; instead, it sets a minimum. We are concerned, therefore, only with that group of employees whose wages are below $1, the new minimum. Agricultural products processing industries will be among those industries affected the most.

Probable Results of Increase in Wage Rates

Three of the probable results of an increase in wage rates are:

1. If higher labor costs result, a tendency for marketing agencies to pass the higher costs on to consumers in the form of higher prices;

2. An increase in the purchasing power of the workers whose wages are raised, resulting in a somewhat broader market for farm products and other commodities; and

3. Efforts by marketing agencies to offset higher wage cost by improving efficiency of their operations.

...candy making...

... and meat-packing.

Other Results of Legislation

There may be other results of this legislation. Marginal processors and distributors may be forced out of business by any increase in cost. To farmers, any reduction in number of firms processing and distributing agricultural products is important because it may tend to lessen the number of buyers and the competition for farm products.

Not to be overlooked is this factor--that an increase in wages, particularly among the lowest-paid employees, often may result in an increased demand for various kinds of food and fiber products. This affects both demand and farm income.

In view of the various actions that may be taken by individual firms and by agricultural marketing industries, the overall effect on the economy, and particularly on farm prices and farm income, cannot now be known.

Increased Research By USDA

It is expected that the Department will give increased research attention to the effects of increasing wages on marketing costs, farm returns, and the nature, adequacy, and extent of marketing services performed by marketing firms. Most of these questions can be dealt with concretely only after actual changes under the new minimum wage have been observed.

Retail Customers Prefer Packaged Produce Displayed With Bulk

By Paul Shaffer

Retail customers are more satisfied with prepackaged produce when they can select their purchases from both bulk and packaged displays than when their selection is limited to prepackaged produce only. When their selection is limited, they are apt to be more critical of the quality and size of the package.

These consumer reactions to prepackaged produce displays were revealed in two recent surveys conducted by a cooperating firm in a Miami, Florida, supermarket. These findings also supported results of previous studies made by the Department.

Maintaining both types of display is likely to be more costly in labor, space, and waste than maintaining only one type of display. The individual retailer must decide whether the increased consumer satisfaction and potential increase in sales is worth the added cost.

In the first survey produce was displayed in both the packaged and bulk form. The survey began one month after the supermarket set up a self-service section. This section duplicated all items which previously required clerk service for weighing and price marking.

Customers had a choice of purchasing approximately 25 percent of the produce items either prepackaged or in bulk. The remainder were purchased in the customary self-service manner. Clerks weighed and price marked such fruits as apples, grapes, pears, peaches, and plums and such vegetables as beans, squash, tomatoes, pepper, and okra. This survey tested the reactions of 100 representative customers.

The second survey started approximately two months after the supermarket discontinued its service produce section. The produce department was made completely self-service. This study reflects in part consumer attitudes toward a complete self-service produce section as well as to prepackaged produce when they had no choice from bulk produce displays. The survey tested 177 representative produce customers.

When customers were able to select from both bulk and packaged displays, 86 percent indicated that they believed prepackaging made their shopping more convenient. But when prepackaged produce was offered for sale in a 100 percent self-service department only 74 percent said that it was more convenient. Likewise, in the first survey 67 percent stated they preferred to select their produce in prepackaged form but when only packaged produce was available only 52 percent stated they preferred to select it in this form.

88 Percent Were Satisfied

When the store had both self-service and service-type displays 88 percent of the customers were satisfied with the quality of the pre-packaged items. When only the self-service type display was maintained, only 75 percent of the customers were satisfied with packaged items.

Quality was maintained, for control purposes, approximately the same during both surveys. The majority of the objections were to the quality of carton tomatoes and bagged potatoes, both of which had been customarily packaged before the survey.

More dissatisfaction was expressed with the sizes of the packages after the bulk displays were discontinued although a variety of sizes of packaged items was available. In the first survey 21 percent of the customers indicated they would suggest a change in package sizes. In the second survey 35 percent said, yes, they would suggest package-size changes. All of the dissatisfied customers except 4 in each group wanted smaller packages.

These customers wanted more variety in the sizes offered. This may be another way of expressing their desire for smaller packages.

Favorable Comments

The 177 customers interviewed in the second survey were asked what they liked most about packaged produce. Since some gave more than one reply the percentages for the various replies do not total 100. Customer comments with percent making them were as follows:

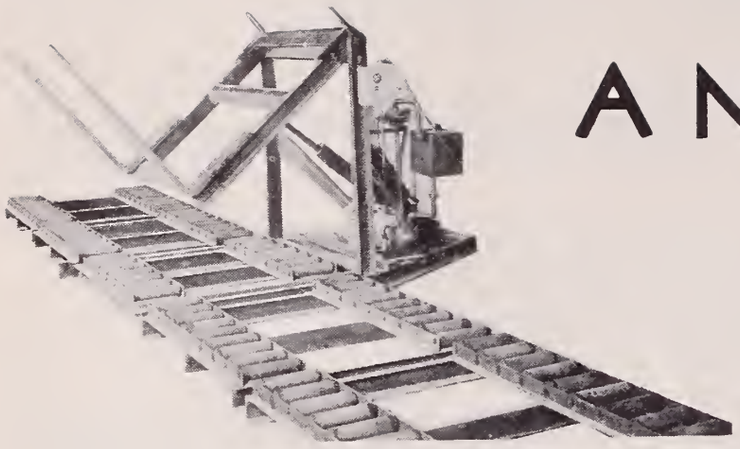
Customer Comments	Percent
Clean, sanitary, not handled by others	36
More convenient, saves time, easy to store, no waiting	27
Better quality than bulk, no waste	13
Attractive appearance	10
Have no dislikes	27

Unfavorable Comments

These same customers were also asked what they disliked about package produce. The replies with percent making them were as follows:

Customer Comments	Percent
Quality--rotten, not fresh, not ripe	16
Suspicion of quality, can't see what is purchased	14
Size of package too large, more sizes	9
Other comments	5
Do not like	12

Most of the unfavorable comments centered on quality of individual produce items. Bad tomatoes and green or bad peaches were the two most commonly voiced dissatisfactions.



A New Box Tipper

By Alfred D. Edgar

USDA researchers have developed a 1-ton pallet box tipper that gives promise of reducing labor costs and quality losses in handling potatoes and other commodities. The work was done at the Red River Valley Potato Research Center, East Grand Forks, Minnesota.

The tipper consists of a motor, pump, hydraulic cylinder, and a strong frame to handle the ton-capacity boxes. It requires 3 or more 4-foot sections of gravity roller conveyors.

Box storage has always seemed promising because it reduces the number of handling steps. This is so particularly when potatoes have to be conditioned, as for potato chips. But in the past, handling costs have been high and potato injury in filling boxes has been excessive.

Boxes are fed onto and off the new tipper along the conveyors. The tipper cradles and tilts the boxes and does not damage them during filling and emptying operations. A conveyor moves the potatoes from the bulk truck to the boxes. The boxes are lowered gradually as filling progresses, to prevent excessive dropping and potato injury. The tipper can also be used to empty the boxes onto a conveyor.

It takes only 3 minutes to place, fill, and remove a box from the tipper to storage. This permits a fork-truck operator to transport, stack, and unstack boxes while others are being filled. He can unload a 200-bushel bulk truck in 15 minutes.

In an effort to improve the handling and storing of potatoes the Department of Agriculture has been comparing the use of bulk bins with boxes.

Handling and storing white potatoes in pallet boxes was initiated in 1944. Since that time it has been found that these boxes, which can be filled in the field or at storage, have a place in the potato industry.

Various methods have been used to fill the boxes in the field. Probably the best method has been to carry boxes on a pushed trailer which enables the driver to keep the boxes directly beneath the

discharge part of the harvesting elevator. Handled otherwise, potatoes hit the tops of the boxes, causing excessive bruising.

Loading boxes with potatoes from bulk harvest trucks started in 1953. Originally these boxes were tilted on a light frame by elevating one side with an overhead hoist. It required 50 minutes to empty a 200-bushel load--too slow to be practical.

Potatoes may be loaded into boxes in the field, or into bulk trucks and then brought to storage to be loaded into boxes. If they are loaded into boxes in the field and brought to storage, it usually takes a fork-truck operator 3-1/2 to 4 minutes to pick up and stack a full box and return with an empty box to the trailer. But it only takes 3 minutes to place, fill, and remove a box from the tipper. Therefore, a field-to-storage motortruck would be delayed less in filling 6 boxes from bulk than if 6 field-filled boxes were removed from the truck and stacked and 6 empty boxes placed in the trailer.

The new box tipper seems to have commercial possibilities where perishable agricultural products are to be stored and handled in pallet boxes. Tilting boxes to fill them results in less drop. Tilting to empty boxes is probably more practical than using boxes with hinged bottoms, especially when storage boxes are filled only once or twice a year.

LEFT, The tipper cradles a 1-ton pallet box in a tilted position. As filling progresses the box is gradually lowered. One box can be rolled on the tipper, be filled and removed in about 3 minutes.

RIGHT, A fork-truck removes a full pallet box for stacking. An empty box has been rolled into position and tilted. A full box can be removed and a new box be put into position in 30 seconds.

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Mushroom sales were increased about one-fourth by using a suggestive display in the meat case. Story on page 8.